

WHAT IS CLAIMED IS:

1. A retardation film comprising:
a material whose intrinsic birefringence value is positive;
another material whose intrinsic birefringence value is negative; and
a gas barrier layer on at least one of surfaces of the film,
wherein oxygen gas permeability of the gas barrier layer in an atmosphere of high temperature and high humidity is not more than $10 \text{ ml/m}^2 \cdot \text{day} \cdot \text{MPa}$.

2. The retardation film according to claim 1, wherein the retardation film comprises a first layer formed with the material whose intrinsic birefringence value is positive and a second layer formed with the material whose intrinsic birefringence value is negative, the first and the second layers having birefringence, and the first and second layers being layered such that retarded phase axes of the first and second layers cross each other at a right angle.

3. The retardation film according to claim 2, wherein a direction of orientation of molecular chains in the first layer and a direction of orientation of molecular chains in the second layer are the same.

4. The retardation film according to claim 2, further comprising a third layer which includes a material whose intrinsic

birefringence value is one of positive and negative, wherein the third layer has birefringence, and the first, second and third layers are successively laminated such that adjacent layers thereof are different in terms of positivity and negativity of the intrinsic birefringence values.

5. The retardation film according to claim 1, wherein the material whose intrinsic birefringence value is positive comprises a polymer of a norbornene type.

6. The retardation film according to claim 1, wherein the material whose intrinsic birefringence value is negative comprises one of polystyrene and a polymer of a styrene type.

7. The retardation film according to claim 6, wherein the polymer of a styrene type comprises a copolymer of at least one of a styrene and a styrene derivative with at least one selected from the group consisting of acrylonitrile, maleic anhydride, methyl methacrylate and butadiene.

8. The retardation film according to claim 1, wherein optical elasticity is not more than 10 Brewsters.

9. The retardation film according to claim 1, wherein λ , a wavelength value, and $\text{Re}(\lambda)$, a retardation at wavelength λ , satisfy

the following relationship at each of wavelengths $\lambda = 450 \text{ nm}$, 550 nm and 650 nm :

$$0.2 \leq \text{Re}(\lambda)/\lambda \leq 0.3.$$

10. The retardation film according to claim 1, wherein the gas barrier layer comprises inorganic material and comprises a thin membrane having a thickness of from 10 nm to 500 nm .

11. A substrate for a liquid crystal display device having a retardation film and a transparent electroconductive thin membrane formed on the surface of the retardation film, wherein the retardation film comprises:

a material whose intrinsic birefringence value is positive;

another material whose intrinsic birefringence value is negative; and

a gas barrier layer on at least one of surfaces of the film,

wherein oxygen gas permeability of the gas barrier layer in an atmosphere of high temperature and high humidity is not more than $10 \text{ ml/m}^2 \cdot \text{day} \cdot \text{MPa}$.

12. A liquid crystal display device equipped with a pair of substrates and a liquid crystal layer sandwiched by the pair of substrates, wherein at least one of the pair of substrates has a quarter wave plate characteristic.

13. The liquid crystal display device according to claim 12, further comprising a light-reflecting member which is disposed at an outer side of the substrate having the quarter wave plate characteristic, and a polarizing plate which is disposed at an outer side of another substrate of the pair of substrates.

14. The liquid crystal display device according to claim 12, wherein, at the substrate having the quarter wave plate characteristic, λ , a wavelength value, and $\text{Re}(\lambda)$, a retardation at wavelength λ , satisfy the following relationship at each of wavelengths $\lambda = 450 \text{ nm}$, 550 nm and 650 nm :

$$0.2 \leq \text{Re}(\lambda)/\lambda \leq 0.3.$$

15. The liquid crystal display device according to claim 12, wherein the substrate having the quarter wave plate characteristic comprises a gas barrier layer on at least one of surfaces thereof, and oxygen gas permeability of the gas barrier layer in an atmosphere of high temperature and high humidity is not more than $10 \text{ ml/m}^2 \cdot \text{day} \cdot \text{MPa}$.

16. The liquid crystal display device according to claim 12, wherein the substrate having the quarter wave plate characteristic comprises a material whose intrinsic birefringence value is positive and another material whose intrinsic birefringence value is negative.

17. The liquid crystal display device according to claim 16, wherein the substrate having the quarter wave plate characteristic comprises a first layer formed with the material whose intrinsic birefringence value is positive and a second layer formed with the material whose intrinsic birefringence value is negative, the first and the second layers having birefringence, and the first and second layers being layered such that retarded phase axes of the first and second layers cross each other at a right angle.

18. The liquid crystal display device according to claim 16, wherein the material whose intrinsic birefringence value is positive comprises a polymer of a norbornene type.

19. The liquid crystal display device according to claim 16, wherein the material whose intrinsic birefringence value is negative comprises one of polystyrene and a polymer of a styrene type.

20. The liquid crystal display device according to claim 19, wherein the polymer of a styrene type comprises a copolymer of at least one of a styrene and a styrene derivative with at least one selected from the group consisting of acrylonitrile, maleic anhydride, methyl methacrylate and butadiene.